
Impact Evaluation Analysis Plan Template for HMRF Grantees

Alabama Healthy
Marriage and Relationship
Education Initiative
Analysis Plan
February 27, 2020
NCT03158714

Impact Evaluation Analysis Plan Template for HMRF Grantees

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection is 0970-0356; this number is valid through 6/30/2021. Public reporting burden for this collection of information is estimated to average 8 hours, including the time for reviewing instructions, gathering and maintaining the data needed, reviewing the collection of information, and revising it. This collection of information is voluntary for individuals, but the information is required from Grantees.

Impact Evaluation Analysis Plan: “The Evaluation of the Alabama Healthy Marriage and Relationship Education Initiative (AHMREI)”

Grantee

Grantee Name: Auburn University, Auburn, AL

Project Lead: Francesca Adler-Baeder, Ph.D.

Email address: francesca@auburn.edu

Evaluator

Evaluator’s Organization: Auburn University, Auburn, AL

Evaluator Lead: Julianne McGill, Ph.D.

Email address: mclanjm@auburn.edu

IMPACT EVALUATION ANALYSIS PLAN

THE EVALUATION OF THE ALABAMA HEALTHY MARRIAGE AND RELATIONSHIP EDUCATION INITIATIVE (AHMREI)

A. Research questions

This section presents the primary and secondary research questions that will be assessed in the impact evaluation of ELEVATE and Couples Connecting Mindfully (CCM).

1. Primary research questions: Program Impact

1. What is the impact of Elevate when compared to the no-program control group on the change in *couple relationship skills* from baseline to the immediate post-program follow-up?
2. What is the impact of Couples Connecting Mindfully when compared to the no-program control group on change in *couple relationship skills* from baseline to the immediate post-program follow-up?
3. What is the impact of Elevate when compared to the no-program control group on change in *individual mental health* from baseline to the six-month follow-up?
4. What is the impact of Couples Connecting Mindfully when compared to the no-program control group on change in *individual mental health* from baseline to the six-month follow-up?
5. What is the impact of Elevate when compared to the no-program control group on change in *couple satisfaction* from baseline to the six-month follow-up?
6. What is the impact of Couples Connecting Mindfully when compared to the no-program control group on change in *couple satisfaction* from baseline to the six-month follow-up?

2. Secondary research questions

Program Impact:

- 1) What is the impact of Elevate when compared to the no-program control group on change in *individual mental health* from baseline to the one-year follow-up?
- 2) What is the impact of Couples Connecting Mindfully when compared to the no-program control group on change in *individual mental health* from baseline to the one-year follow-up?
- 3) What is the impact of Elevate when compared to the no-program control group on change in *relationship satisfaction* from baseline to the one-year follow-up?
- 4) What is the impact of Couples Connecting Mindfully when compared to the no-program control group on change in *relationship satisfaction* from baseline to the one-year follow-up?

Process of change:

In order to explore our logic model assumption that immediate change in program targets (i.e. *couple relationship skills*) immediately following program participation leads to longer-term outcomes in couple functioning we will examine a path model. See Figure 1.

- 5) Do changes immediately following Elevate participation in *couple relationship skills* predict *couple satisfaction* at 6 months, accounting for baseline?
- 6) Do changes immediately following Couples Connecting Mindfully participation in *couple relationship skills* predict *couple satisfaction* at 6 months, accounting for baseline?

B. Description of the intended intervention and counterfactual condition

This section provides a brief description of the intervention being evaluated.

1. Intervention condition(s)

Intended Components: The intervention consists of participation in either the Elevate curriculum or the Couples Connecting Mindfully (CCM) curriculum. The couples education interventions are multi-session programs written for delivery to couples in community-based educational settings. Each curriculum involves 6-week group-based classes in which couples receive content on relationship skills.

Intended Content: The content of the curricula is focused on key relationship skills and information that promotes couple quality and stability (see The National Extension Relationship and Marriage Education Model www.nermen.org). These include: self-care, intentionality, conflict and stress management, development of intimate knowledge of partner, development of a couple identity, caring couple behaviors, and development of supportive social connections.

Planned Dosage and Implementation Schedule: Both curricula are explicitly research-informed and consist of 6 sessions delivered in separate consecutive weekly sessions of approximately 2 hours each. This implementation schedule was consistent across the 10 implementation sites.

Intended Delivery: Programs are delivered in accessible community-based facilities that support a productive learning environment. Trained facilitators (male/female teams) deliver the programs.

Target Population: Each program is broadly offered in the 10 different implementation sites and are intended to serve couples aged 19 and older in self-defined committed couple relationships.

Education and Training of Staff: Most facilitators have a background in family services and/or education and all have a minimum of a Bachelor's degree. Specifically, 73% of facilitators have a bachelor's degree; 24% have a Master's degree; and 3% have a doctorate. Each facilitator is provided a comprehensive 2-day training on program curriculum by program developers prior to implementation. Facilitators then complete fidelity checklists following each program session to track program components that were implemented each week. Classes were also routinely monitored by project staff for fidelity and quality. Ongoing technical assistance

was provided to facilitators by scheduled phone calls and webinars with the project and Evaluation Staff to discuss program implementation, evaluation design, data collection, participant engagement, and evaluation feedback.

2. Counterfactual condition

Those assigned to the control group receive a list of family resources in the area. This occurs at time of random assignment and is sent via email. The location-specific resource list was developed by the staff at each site so they are specific to the community of study participants. The resource list included sources for employment, housing, child services, health and well-being, education, addiction treatment, legal services, and other multi-need services. The partner agencies' staff was able to update the resource list throughout recruitment. No other programs and services are provided to them as part of the intervention study.

Table 1. Description of intended intervention and counterfactual components and target populations

Component	Curriculum and content	Dosage and schedule	Delivery	Target Population
Intervention				
<i>Relationship skills sessions</i>	<i>CCM: Healthy relationships curriculum: communication skills; relationship skills; mindfulness-based stress relief skills</i> <i>ELEVATE: Healthy relationships curriculum; communication skills; relationship skills, self-care skills</i>	<i>6 sessions (2 hours each)</i>	<i>Group lessons provided at the intervention's facilities by two trained facilitators in every session</i>	<i>Adult couples in a self-defined committed couple relationship</i>
Counterfactual				
<i>Location-Specific Resource List/N/A</i>	<i>Control respondents were provided location specific resource lists. Resources covered: employment/work, housing, child services, mental & physical health services, education, addiction treatment & support, legal services, and multi-need services.</i>	<i>Received at random assignment</i>	<i>Sent via email</i>	<i>Adult couples in a self-defined committed couple relationship</i>

Table 2. Staff training and development to support intervention and counterfactual components

Component	Education and initial training of staff	Ongoing training of staff
Intervention		
<i>Relationship skills sessions</i>	<i>Facilitators are male and female and hold at least a bachelor's degree and received four days of initial training (2 days per curriculum).</i>	<i>Facilitators participated in regular technical assistance calls and webinars with project and evaluation staff. Observations and feedback sessions were also utilized.</i>
Counterfactual		
<i>Location-Specific Resource List</i>	<i>Staff at partner agencies developed the resource list for their specific community.</i>	<i>Staff at partner agencies were able to update the resource list before each cohort recruitment period.</i>

C. Study design

This section provides a brief description of the study design and the process for creating intervention and comparison groups.

1. Sample formation

Couples were recruited into our study in five separate cohorts over two and a half years. Recruitment began in August 2016 and was completed in January 2018. Approximately a month before the beginning of programming for each cohort, recruitment across the 10 implementation sites began. The implementation sites are: 1) Alabama Cooperative Extension System in Elmore County, 2) Circle of Care, 3) Family Guidance Center, 4) Family Success Center, 5) Hope Place, 6) IMPACT Family Counseling, 7) Auburn University, 8) Parents and Children Together (PACT), 9) Sylacauga Alliance for Family Enhancement (SAFE), and 10) Tuscaloosa's One Place (TOP).

Recruitment of couples into the impact evaluation occurred through distribution of flyers (approved by the Auburn University Institutional Review Board) at community agencies, such as family resources centers, local churches, libraries, and other settings where community members were likely to frequent. Additionally, flyer information was posted online via the AHMREI Facebook page and website.

All adults who indicated they were in a committed couple relationship (married or nonmarried) and who expected to attend as a couple if selected for a program group were eligible to participate in the local impact evaluation study. Anyone under age 19 and adult individuals who intended to attend as singles were not eligible to participate in the impact evaluation.

a. Random assignment process

Couples were randomly assigned if at least one of the individuals in the couple completed the baseline survey. The evaluation lead conducted the random assignment by implementation site. Couple IDs developed by the nFORM system were entered into separate site-specific SPSS files by evaluation staff. The evaluation staff utilized the SPSS random number generator to arbitrarily code the couples as a 1 (Elevate), 2 (Couples Connecting Mindfully), or 3 (control) in order to randomly assign the study participants. Following completion of random assignment, the evaluation staff notified each study participant via an email with their assignment. For those in the program groups, their email included times and location of the assigned class. Each step of the random assignment process was implemented by the evaluation staff.

2. Data collection

The following data collection procedures were approved by the Auburn University Institutional Review Board (IRB) that oversees Human Subjects protection in research. The original approval was provided on August 15, 2016 and is still currently up to date after yearly renewals. When couples or a member of a couple expressed interest in participating, we collected basic enrollment information and further explained the nature of the evaluation project using the recruitment script. We explained random assignment procedures, reminding couples they had a 2 out of 3 chance to be assigned to one of the program groups and a 1 out of 3 chance they would be assigned to the control (no program) condition. We explained they would be asked to complete a series of surveys on the web-based system, Qualtrics, at the following times: baseline, immediate post- program (8 weeks after baseline), 6-month follow-up to

baseline, 1-year follow-up and 2-year follow up. We explained that participants complete the surveys individually rather than as a couple. We offered the option of filling out these surveys through a link provided via email or by coming to the agency/center to complete on a tablet in the rare case that a participant does not have personal access to technology. We also explained the participant compensation plan: participants who completed a survey received \$50 each at baseline, immediate post-program, 6-month, and 1-year, and \$100 at 2-year follow-up.

Once a couple agreed to participate, they provided contact information (first name, last name, birthdate, address, phone, email) to a staff member/educator in order to generate a participant profile in the nFORM system. Enrollment took place both on the phone and in-person. Information was provided for each member of the couple, resulting in an individual profile, and both a participant and couple ID in the nFORM system were generated.

Immediately following enrollment in the nFORM system, each participant indicated their willingness to participate in the study by reading and signing the informed consent letter approved by the Auburn University Institutional Review Board.

Two weeks prior to program start, all study participants who signed and returned an informed consent letter were emailed a link to a baseline Qualtrics survey to be completed within a week. One week before the start of classes, participants who completed (or who had a partner complete) a baseline survey were randomly assigned by site (block random assignment), using a random number generator based on the couple ID (generated upon enrollment through nForm) to either one of the two program groups or to the comparison group.

Participants in the program groups also were asked at their first class to complete the nForm surveys (i.e., applicant characteristics and Entrance surveys). All participants who received programming were asked to complete the nForm Exit survey at the last class meeting. Note: the data from the Entrance and Exit surveys are not included in our impact evaluation.

All impact study participants (program groups and controls) were emailed a link to the immediate post-program Qualtrics survey within one week after the class series ending.

This survey process was repeated at the six month, one year, and two year marks after baseline survey completion. Participants were initially contacted one month prior to the data collection timepoint and given until one month after the data collection timepoint to complete the survey. Several prompts and reminders to complete the survey were sent during the “open” period.

The evaluation staff at the central A.U. office tracks data as it is collected and initiates compensation via mailed checks within the week of receiving a completed survey from a participant.

Efforts to reduce attrition after enrollment:

Following enrollment in the study, the following engagement strategies were utilized:

- Weekly emails and/or texts to remind participants of study activities and deadlines, such as receipt of the baseline survey and class start dates for those assigned to program groups

- Email and/or text throughout the week of survey completion until survey was submitted
- An email and/or text one day prior to class start for the program groups

Engagement strategies to retain participants in the study for the 6-month, 1-year, and 2-year follow up include:

- Birthday card emailed to participant 1 week prior to birthday.
- Anniversary card emailed to participant 1 week prior to anniversary date (anniversary date information was collected on the pre-program survey).
- Receipt of “save the date” (email, mail, and/or text) 1 week prior to emailing follow-up survey links.
- Reminder texts and emails during the “open” period for survey completion that included offering scheduled appointments for coming to agency to complete on iPad there.

Table 3. Key features of the data collection

	Data source	Timing of data collection	Mode of data collection	Party responsible for data collection	Start and end date of data collection
<i>Intervention</i>	<i>Intervention group study participants</i>	<i>Enrollment (baseline)</i>	<i>Online Qualtrics survey nFORM Applicant Characteristics Survey & Entrance Survey</i>	<i>Evaluation Staff Implementation Staff</i>	<i>September 2016 through January 2018</i>
		<i>End of intervention (6 weeks after program start)</i>	<i>Online Qualtrics survey nFORM Exit Survey</i>	<i>Evaluation Staff Implementation Staff</i>	<i>October 2016 through March 2018</i>
		<i>6 month follow-up</i>	<i>Online Qualtrics survey</i>	<i>Evaluation staff</i>	<i>March 2017 through August 2018</i>
		<i>1 year follow-up</i>	<i>Online Qualtrics survey</i>	<i>Evaluation Staff</i>	<i>September 2017 through February 2019</i>
		<i>2 year follow-up</i>	<i>Online Qualtrics survey</i>	<i>Evaluation Staff</i>	<i>September 2018 through February 2020</i>
<i>Counterfactual</i>	<i>Control group study participants</i>	<i>Enrollment (baseline)</i>	<i>Online Qualtrics survey</i>	<i>Evaluation staff</i>	<i>September 2016 through January 2018</i>
		<i>End of intervention (6 weeks after program start)</i>	<i>Online Qualtrics survey</i>	<i>Evaluation Staff</i>	<i>October 2016 through March 2018</i>
		<i>6 month follow-up</i>	<i>Online Qualtrics survey</i>	<i>Evaluation staff</i>	<i>March 2017 through August 2018</i>
		<i>1 year follow-up</i>	<i>Online Qualtrics survey</i>	<i>Evaluation Staff</i>	<i>September 2017 through February 2019</i>
		<i>2 year follow-up</i>	<i>Online Qualtrics survey</i>	<i>Evaluation Staff</i>	<i>September 2018 through February 2020</i>

3. CONSORT diagram

[CONSORT diagrams are attached in the appendices.]

D. Analysis

1. Outcome measures

Primary:

Couple relationship skills will be measured using 32 items from the Couple Relationship Skills Inventory (CRSI). This measure was constructed to match the core relationship skills and predictors of couple quality emphasized in the HMRE programs provided. Items are taken from several established and validated social science measures assessing commitment and intentionality in the relationship, intimate knowledge about partner, sense of friendship and togetherness, caring behaviors, conflict management behaviors, and connections to support outside the relationship. We have recently conducted validity tests of the factor structure (i.e., confirmatory factor analyses) and have evidence of validity and reliability of the full measure for our sample. Response anchors range from 1 (Very strongly disagree) to 7 (Very strongly agree). Composite scores will be created at the individual level since they reflect the individual's level of skills. Higher scores indicate greater *couple relationship skills*. Cronbach's alpha for men ($\alpha = .91$) and women ($\alpha = .92$) indicate excellent reliability.

Individual mental health will be measured using the SF-12 Mental Component Summary score (Sanda, Wei, & Litwin, 2002). Items are asked on differing scales (e.g., 1 to 3 or 1 to 5) with different anchor responses (e.g., all of the time to none of the time, or not at all to extremely). Following the SF-12 scoring instructions, item responses are first standardized, then summed, and standardized further by adding 60.75781, per the SF-12 scoring instructions. Higher scores indicate better *individual mental health*.

Relationship satisfaction will be measured using an abbreviated version of the Couple Satisfaction Index (Funk & Rogge, 2007) utilized in previously published studies. The 3 items are: "I have a warm and comfortable relationship with my partner," "How rewarding is your relationship with your partner?," and "In general, how satisfied are you with your relationship?" Response anchors range from 0 (Not at all) to 5 (Completely). Composite scores will be created based on responses from each member of the couple individually and from both members of the couple combined to represent a couple level variable. Higher scores indicate higher *relationship satisfaction*. Cronbach's alpha for men ($\alpha = .85$) and women ($\alpha = .89$) indicate good reliability.

Table 4. Description of outcome measures used to answer impact analysis primary research questions

Outcome name	i. Description of the outcome measure	ii. Source of the measure	iii. Timing of measure
<i>Couple Relationship Skills</i>	The outcome measure will be an individual composite score of 32 questions asked on a 7-point Likert scale.	Qualtrics survey	Baseline and 6 weeks after baseline
<i>Mental Health</i>	The outcome measure will be an individual score calculated from 12 questions per the SF-12 instructions.	Qualtrics survey	Baseline and 6-month follow-up
<i>Relationship Satisfaction</i>	The outcome measure will be the couples' composite score from 3 questions on a 5-point Likert scale.	Qualtrics survey	Baseline and 6-month follow-up
<i>Participant Group</i>	The predictor measure is based on participant group (1) or control group (0).	Evaluation Team Records	Random Assignment

Secondary:

The outcomes measures for the secondary research questions are the same as the measures used in the primary research question. See above for details on those measures.

Table 5. Description of outcome measures used to answer impact analysis secondary research questions

Outcome name	iv. Description of the outcome measure	v. Source of the measure	vi. Timing of measure
<i>Couple Relationship Skills</i>	<i>The outcome measure will be an individual composite score of 32 questions asked on a 7-point Likert scale.</i>	<i>Qualtrics survey</i>	1-year follow-up
<i>Mental Health</i>	<i>The outcome measure will be an individual score calculated from 12 questions per the SF-12 instructions.</i>	<i>Qualtrics survey</i>	1-year follow-up
<i>Relationship Satisfaction</i>	<i>The outcome measure will be the couples' composite score from 3 questions on a 5-point Likert scale.</i>	<i>Qualtrics survey</i>	1-year follow-up
<i>Participant Group</i>	<i>The predictor measure is based on participant group (1) or control group (0).</i>	<i>Evaluation Team Records</i>	Random Assignment

2. Data preparation

Survey responses for each cohort across each time point will be downloaded from Qualtrics into separate SPSS databases. These databases will be merged based on participant individual ID in order to create a master dataset with survey responses from each of the five cohorts across each of the five time points. Basic descriptives will be run on all variables of interest to assess for outliers or impossible scores on each scale.

Furthermore, consistency in demographic data will be assessed across participants and timepoints. Evaluation staff will use a master code list containing participant IDs and demographic data and nFORM to verify accuracy in demographic data across participants and timepoints. Responses that are obvious keystroke errors of respondents based on master code list information and inconsistency with other timepoint reports will be corrected. We will also assess couple demographics reported between dyads for agreement. If a couple disagrees on marital status (i.e., one reports married and one reports nonmarried), we will defer to the nonmarried report.

Data will be assessed for patterns of missingness using a thorough plan that explores percent of missingness by item, by composite score, and by respondent. We will explore at each timepoint whether those missing data within treatment and control groups differ systematically from those who do respond in order to determine whether there is a risk of generalizability bias. CONSORT diagrams will clearly describe the number of couples who consented to be in the study, who complete the baseline assessment, who were randomly assigned to the program and control groups, and who responded to the immediate post-program and each follow-up survey.

Another table will be completed to illustrate the sample characteristics of the groups, as well as the means and standard deviations of the measures of interest, at baseline and at follow-up points. Statistical tests will be conducted (t-tests for continuous variables and chi square difference tests for categorical variables) to determine whether there are differences between respondents in the control group and respondents in the program group. Additionally, the Hedge's g effect size for group differences will be calculated based on the analytic sample.

Another table will describe differences in measured baseline characteristics of those who respond at each timepoint and those who do not. We will conduct statistical tests of between-group differences. Hedge's g effect size for group differences will be calculated. Patterns of missingness between treatment groups also will be assessed in order to determine whether there is a risk of causal validity bias, which results from systematic differences between responders in the treatment and control groups.

After assessing overall and differential attrition, we will examine patterns of missingness by case and item. Our plan includes several approaches to addressing missingness, depending on the findings from the initial examination of missingness. If it is determined that we have a very low rate of missing values, there are no systematic differences between respondents and nonrespondents within and between groups, and loss of those cases would not affect power in our planned analyses, cases with missing values will be deleted in listwise fashion. Additionally, to address item nonresponse and to create scale scores, mean imputation methods will be used. Specifically, when an individual participant has responded to 80% of the items that make up the scale, they will be retained for the analyses and the mean of the items will be imputed. This will be done separately for treatment and control group members.

3. Analytic sample

The analytic sample will differ based on the research question because response rates are different at immediate post-program and at 6-month follow-up. The current numbers presented in the CONSORT diagram illustrates the number of respondents at each time point who completed the survey (i.e., prior to imputation). We anticipate using the procedures described in the previous section for addressing missing data to maximize the retention of cases and for ensuring valid comparability of the treatment and control groups; however, because we are using mean imputation for those who respond to 80% or more of the measure, these numbers may change slightly based on the outcome of interest. Attendance at the program for those assigned to the program condition is not a condition of inclusion in the analytic sample (see explanation below for the Intent to Treat design).

For primary research questions #1 & #2 we will utilize 753 couple data sets over 2 time points (baseline and immediate post-program). Specifically, 249 couples randomly assigned to Elevate, 249 couples randomly assigned to CCM, and 255 couples randomly assigned to the control condition responded to the immediate post-program survey. For primary research questions #3-6 we will utilize 671 couple data sets over 3 time points (baseline, immediate post-program, and 6-month follow-up). Specifically, 221 couples randomly assigned to Elevate, 231 couples randomly assigned to CCM, and 219 couples randomly assigned to the control condition responded at the 6-month follow-up.

Assessment of baseline equivalence

Differences among groups on baseline demographics (e.g., race, age, income, marital status, parent status, and education level) and baseline levels of the outcomes of interest will be assessed using independent t-tests for continuous variables and crosstabs with chi-squares for categorical variables wherein statistical significance in differences is determined at $p < .05$. Additionally, the Hedge's g effect size for group differences will be calculated based on the analytic sample. These tests of difference will be completed with non-imputed data.

Furthermore, there was no condition crossover. That is, no control respondents participated in the HMRE program during the study period. Although not necessarily considered cross-over or contamination of services, 10% of control respondents did seek and/or receive services that are always available in the community at the immediate post-program survey, 15% at the 6-month follow-up, and 18% at the 1-year follow-up. Because case management is offered to all HMRE program participants, involvement in community services was higher for those randomly assigned to a program group. Specifically, 34% of program participants sought or received services available in the community immediately following the program, 36% at the 6-month follow-up, and 37% at the 1-year follow-up. This information was gathered from questions on the Qualtrics surveys administered by the evaluation team asking about services outside of the intervention offerings. Regardless of whether other services were accessed during the study period, all control respondents will be included in the control group for analyses to maintain an intent to treat model for analyses.

4. Analytic approach

We will use an “Intent to Treat” (ITT) approach, which is the most rigorous approach to evaluation and yields the most reliable efficacy results for testing a program in a “real world” setting (OPRE, 2010; Weiss & Jacobs, 2008; Wood et al., 2014). Group comparisons are based on assignment to one of the three possible groups, rather than completion. All 6 primary questions center on the assessment of program impact (or treatment effect) of program participation. Questions 1 and 2 will include a test of program impact on immediate change (approximately 6 weeks after baseline) in couple relationship skills for Elevate and for CCM, the primary areas of skills-training for the intervention. We will utilize multi-level modeling to assess differences between groups at the immediate post-program timepoint. With this method, we can account for baseline levels of the skills and account for the nesting of the individual within the couple. To test for program impact at the 6-month mark of the other two primary outcomes (questions 3-6) we will employ recommended methods for randomized trials. Although most studies of Couple Relationship Education using comparison groups and included in meta-analyses have used repeated measures analysis of covariance to test for treatment effects, suggestions are that growth curve modeling as a variant of mixed-effects models (or random effects, random-regression) is a more powerful technique than the repeated-measures analysis of covariance (e.g., Schultz, Cown & Cown, 2006; Gueorguieva & Krystal, 2004; Amato, 2014). The results of multilevel Growth Curve Model can provide information on differences at timepoints between groups, as well as the program impact on rates of change. We will model these statistical analyses with a Bayesian approach in Stan.

We will use SPSS and Mplus (Muthén & Muthén, 1998-2014), and the COMPLEX specification, which corrects for the non-independence of cases by clustering analyses by couple/site ID. Group differences across the 2 groups (i.e., one of the two program groups and the control group) will be tested by constraining means to be equal and using the chi-square difference test to determine if variant and invariant models are significantly different. Findings are considered statistically significant based on $p < .05$, two-tailed test. Cohen’s effect size d will be calculated to evaluate effect size, .10 = small, .25 = medium, .40 = large (Cohen, 1988).

Sensitivity analyses will include testing alternative methods/approaches to ensure the robustness of the results and the appropriateness of the analytic approach taken. In couple datasets

it is common to test results separately for men and women to compare to the results for methods that use the individual nested with the couple. We will also compare results in which both individual and cluster level covariates are used and results in which only individual covariates are use. Even though random assignment was used, we will fit models with and without covariates to test whether it is necessary to control for differences that may exist at baseline between groups.

5. Additional planned analyses

Secondary Research Questions. In addition to the primary research questions central to the local impact evaluation, there are several other important questions we plan to explore in order to more fully understand the experience of participation in HMRE programs at our sites.

To address secondary *research question #1-4*, we will employ the same multi-level modeling methods described above to further test program impact of program participation.

To address secondary research question #5, whether changes immediately following program participation in *couple relationship skills predicts couple satisfaction at 6 month follow-up*, accounting for baseline level, a path model will be fit to test the change on change pathway. Structural equation modeling (SEM) techniques allow us to test the “spillover” hypothesis. Goodness of fit indices will be assessed to establish fit of data to the model.

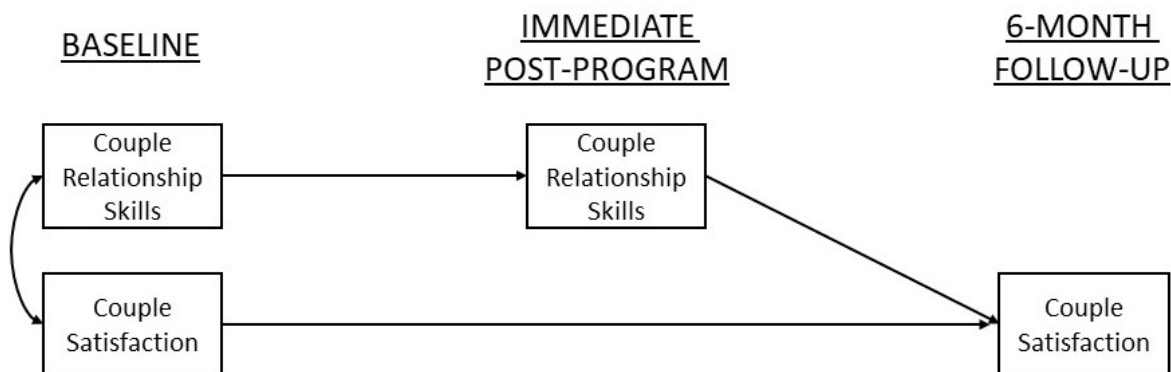


Figure 1. The conceptual model for Secondary Research Question #5 & 6.

Figure A. CONSORT diagram for individual clients.

Diagram date: 12/19/19

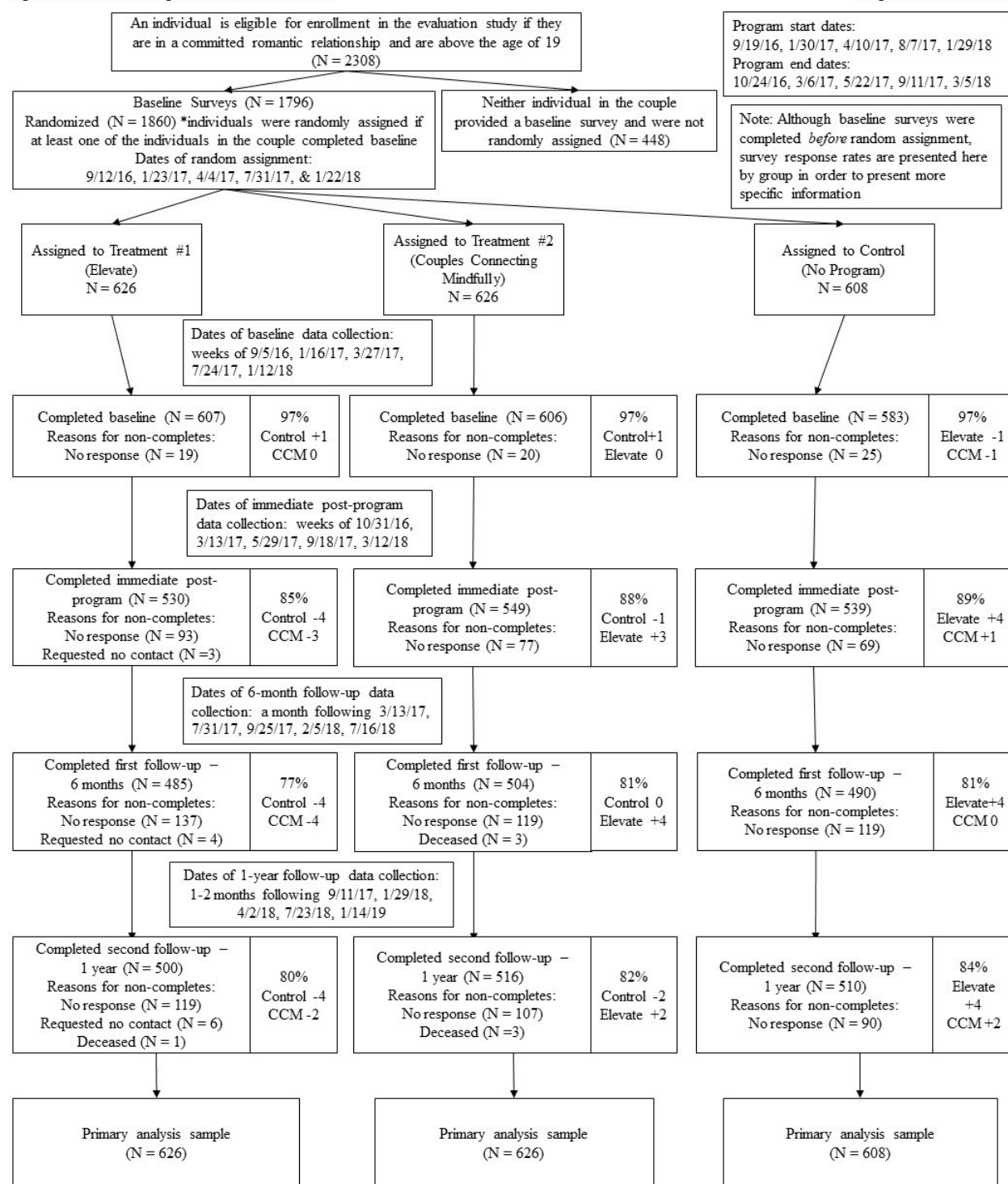
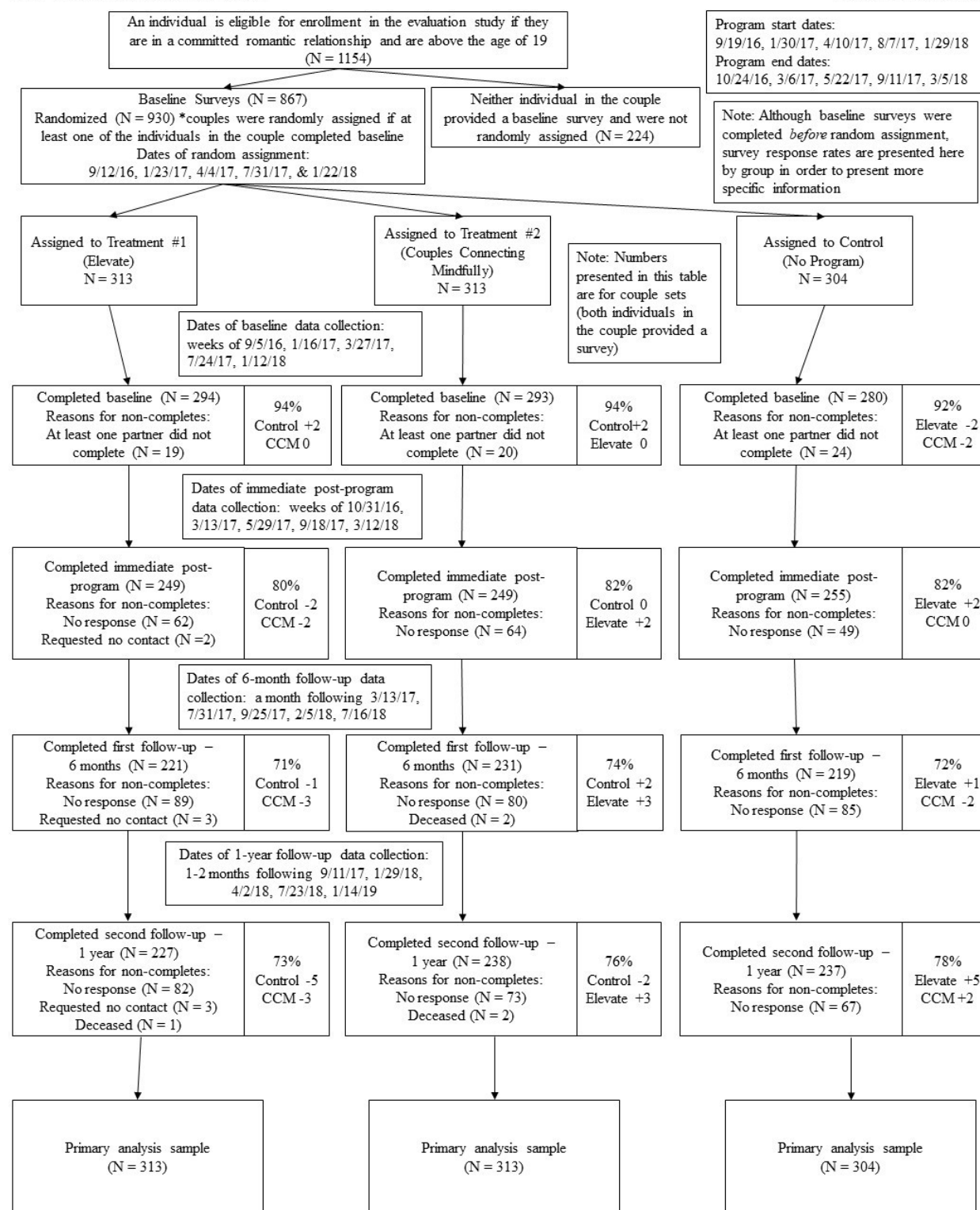


Figure B. CONSORT diagram for couples.

Diagram date: 12/19/19



Appendix A: Primary Research Question Measures

Couple Relationship Skills

Please rate how strongly you disagree or agree with each of the following:							
	Very Strongly Disagree	Strongly Disagree	Disagree	Mixed	Agree	Strongly Agree	Very Strongly Agree
1. I have the power to manage the challenges in my life.							
2. I ask for help from others when needed.							
3. I recognize my strengths.							
4. I manage the stress in my life.							
5. I eat healthy meals every day.							
6. I exercise at least 3 or more times a week.							
7. I get 7-8 quality hours of sleep every night.							
8. I have quiet time for myself every day.							

Please rate how strongly you disagree or agree with each of the following:							
	Very Strongly Disagree	Strongly Disagree	Disagree	Mixed	Agree	Strongly Agree	Very Strongly Agree
9. I want this relationship to stay strong no matter what rough times we encounter							
10. I commit effort every day to making my relationship work							
11. I always think about how my choices could affect my relationship							
12. I always make an effort to focus on my partner's strengths							

Please rate how strongly you disagree or agree with how well each statement describes you:							
	Very Strongly Disagree	Strongly Disagree	Disagree	Mixed	Agree	Strongly Agree	Very Strongly Agree
13. I know my partner's current life stresses							
14. I know some of my partner's major aspirations and hopes in life							
15. I know my partner's current major worries							
16. I know my partner pretty well							

In the past month, how often would you say the following events occurred between you and your partner?							
	Never	Less than once a month	Once or twice a month	Once or twice a week	3-4 times a week	Once a day	More often than once a day
17. Had a stimulating exchange of ideas							
18. Engage in and/or talk about outside interests together							
19. Make time to touch base with each other							

On average, how often in the past month did you:							
	Never	Less than once a month	Once or twice a month	Once or twice a week	3-4 times a week	Once a day	More often than once a day
20. Say "I love you" to your partner							
21. Initiate physical affection with you partner (e.g., kiss, hug)							
22. Share emotions, feelings, or problems with your partner							
23. Tell my partner things I appreciate about him/her and how much I care for him/her							

First, rate how strongly you disagree or agree with how well each statement describes you during the past month in a typical disagreement:							
	Very Strongly Disagree	Strongly Disagree	Disagree	Mixed	Agree	Strongly Agree	Very Strongly Agree
24. I am able to see my partner's point of view and really understand it, even if I don't agree							
25. When things "get heated" I suggest we take a break to calm down							
26. I can easily forgive my partner							
27. I shout or yell at my partner							
28. I blame, accuse, or criticize my partner							

Please rate how strongly you disagree or agree with how well each statement describes you and your partner:							
	Very Strongly Disagree	Strongly Disagree	Disagree	Mixed	Agree	Strongly Agree	Very Strongly Agree
29. Many of our friends are friends of both of us							
30. We know people who care about us and our relationship							
31. If we were to need help getting by or encountered a crisis, we would have friends and family to rely on							
32. As a couple, we try to help others in need							

Individual Mental Health

	Excellent	Very Good	Good	Fair	Poor
1. In general, would you say your health is:					
The following questions are about activities you might do in a typical day. Does your health now limit you in these activities? If so, how much?					
			Yes, a lot limited	Yes, limited a little	No, not limited at all
2. Moderate activities, such as moving a table, pushing a vacuum, bowling, or playing golf					
3. Climbing several flight of stairs					
During the past month, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?					
	All of the time	Most of the time	Some of the time	A little of the time	None of the time
4. Accomplishing less than you would like					
5. Did work or other activities less carefully than usual					
During the past month, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems?					
6. Accomplishing less than you would like					
7. Did work or other activities less carefully than usual					
How much of the time in the past month...					
8. Have you felt calm and peaceful?					
9. Did you have a lot of energy?					
10. Have you felt downhearted and depressed?					
11. How much of the time has your physical health or emotional problems interfered with social activities (like visiting friends, relatives, etc.)?					
	Not at all	A little Bit	Moderately	Quite a bit	Extremely
12. During the past month, how much did pain interfere with your normal work (including both work outside the home and housework)?					

Relationship Satisfaction

	Not at All	A little	Somewhat	Mostly	Almost	Completely
1. I have a warm and comfortable relationship with my partner.						
2. How rewarding is your relationship with your partner?						
3. How satisfied are you with your relationship?						